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SUSTAINABLE AQUAPONICS IN SOUTH AFRICA
HOBBY OR COMMERCIAL REALITY?

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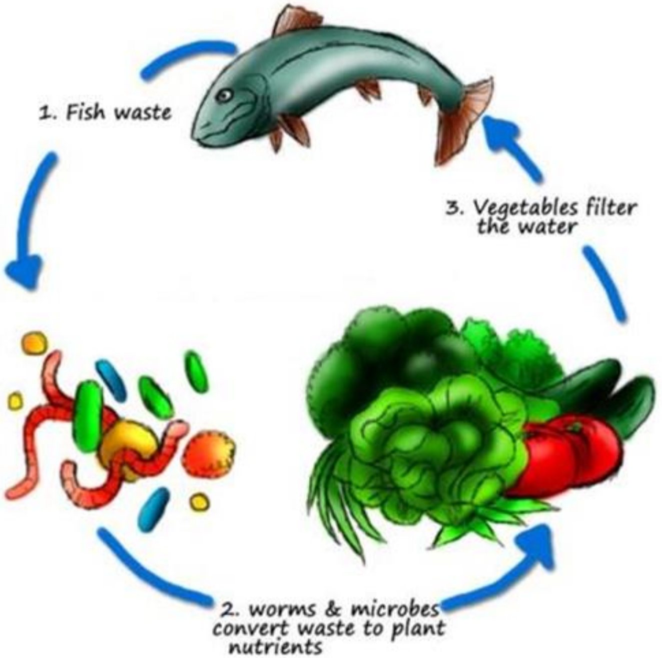

1. Introduction:

Stellenbosch

How Aquaponics Creates Benefit for All

We can create benefit for all when we look at how aquaponics impacts the people and planet while creating prosperity for all.

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Triple-Bottom Line	Community Stakeholders						
	Community Members (Children, Adults, Elders)	***Education***	***Business & Industry***	***Government***	***Banking & Investment***	***Healthcare & Wellness***	***Media***
PEOPLE	• Increase access to affordable, **healthy**, fresh, organic GMO free **food**	• Connect people to new sustainable knowledge and develop local **community learning** resources	• Partner with existing industry leaders and Community Stakeholders to build **new products**, services and solutions	• Establish policies to **support** thriving local food and healthcare networks based on **sustainable practices**	• Provides long term financial security through local, sustainable and **renewable investments**	• Increase use of preventative practices that include **proper nutrition** and natural remedies	• **Showcase unique** ideas and **solutions** that inform and build new relationships that strengthen local communities
PLANET	• **Grow food** and medicine **anywhere** (indoors, outdoors, rural, urban and suburban environments)	• Showcase **living examples** of high-yield systems that use a fraction of water than conventional farming	• **Reduce** transportation **costs** by creating local businesses and infrastructure	• **Protect** sustainable industries and infrastructure that preserves our **natural resources**	• **Develop** a **greener economy** while supporting local green industries and jobs	• Support **healthy** solutions that factor in the impact on the **planet**	• Feature how sustainable solutions create a **positive impact** on the planet and the local community
PROSPERITY	• Increase quality of life and participate new **green jobs** and economic opportunities	• Offers new educational programs to support an emerging **green industry**	• Develop green products and services that generates livable wage jobs while creating access to **new customers** and markets	• Commitment to food purity, **food security** and food sovereignty.	• Create **diversified portfolios** that leverages the local food and agriculture movement	• Participate and develop new **empowering healthcare models** through local food and medicine	• Create local **media channels** that focus on organic food, holistic medicine and green industries

2. Historic research:

- Philippe Lapere
- Industrial Engineering
- December 2010
- Masters degree
- Techno-Economic Feasibility Study into Aquaponics in SA

A Techno-Economic Feasibility Study into Aquaponics in South Africa

by
Philippe Lapere

Thesis presented in partial fulfilment of the requirements for the degree Master of Science in Engineering (Engineering Management) at the University of Stellenbosch

Supervisor: Mr. Theuns Dirkse van Schalkwyk
Faculty of Engineering
Department of Industrial Engineering

December 2010

2. Historic research:

- Study to investigate the feasibility of current aquaponic systems in South Africa
- Case studies were done on 4 farms
- Farms produce tilapia and vegetable varieties
- No current market for tilapia
- The results indicated that the majority (3 out of 4) of the farms are not economically viable. The one farm did perform reasonably well, but a number of assumptions were made which positively influenced the outcome

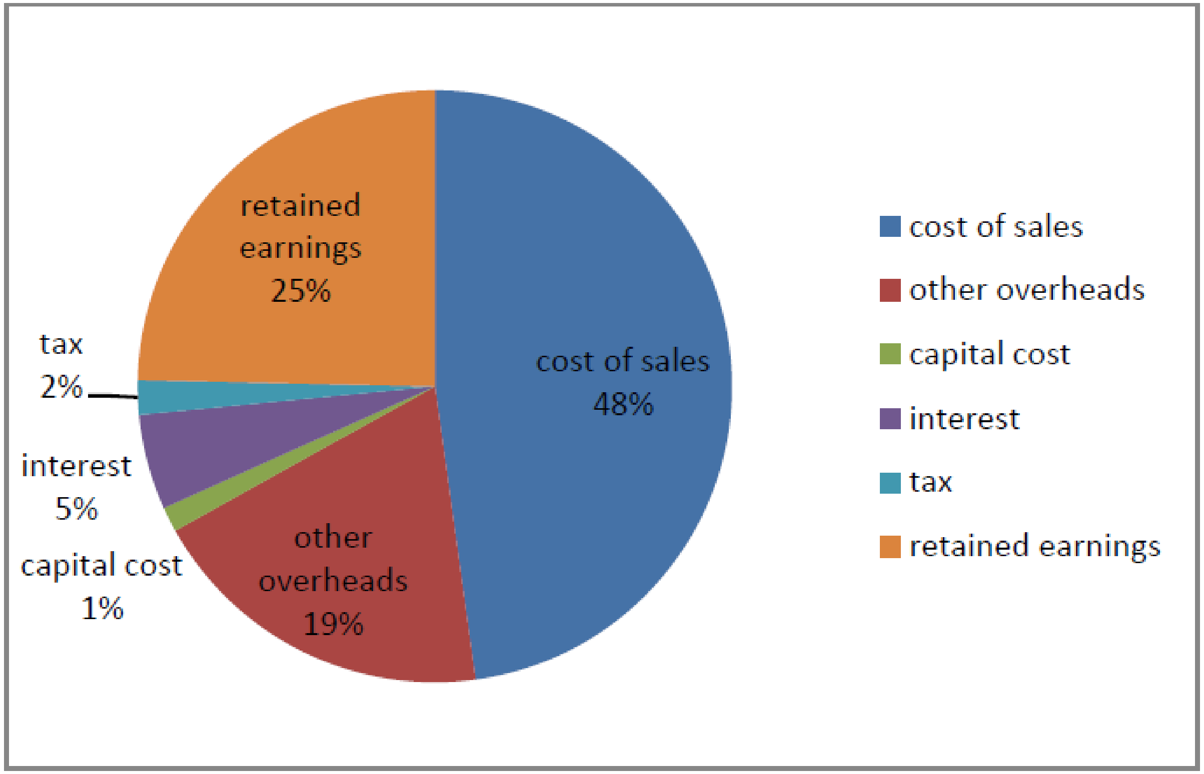
2. Historic research:

Sequence to determine the feasibility of an aquaculture operation:

- Calculate the growth projections of the fish species;
- Calculate the capital cost of the system;
- Calculate the operational cost of the system;
- Project the sales;
- Combine the above calculations into financials in order to determine whether the venture will be financially viable

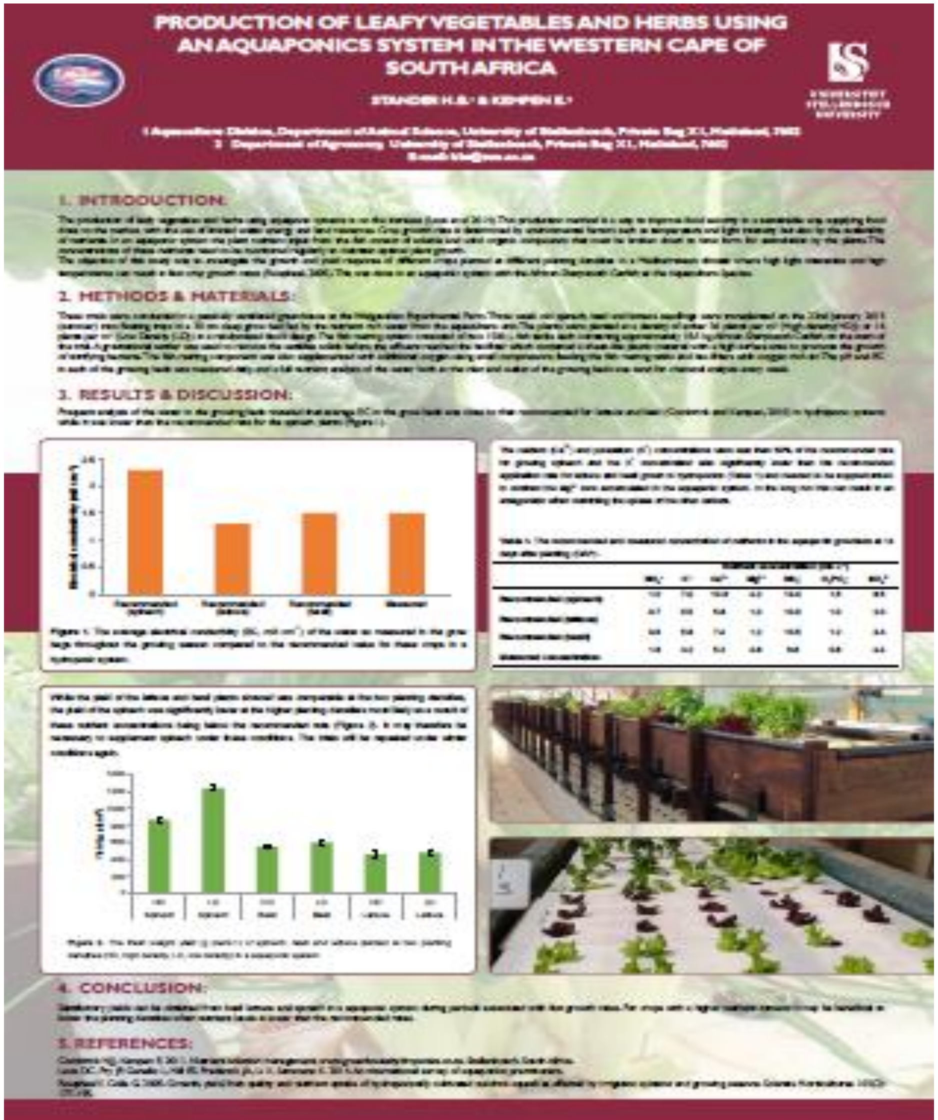
2. Historic research:

A breakdown of the sales generated on farm:

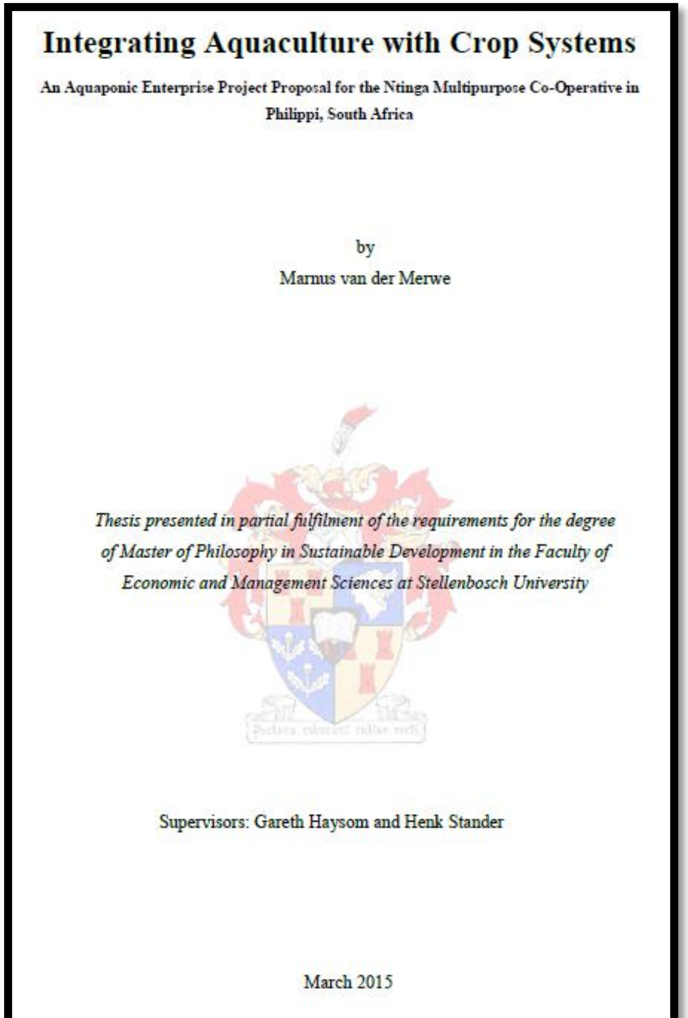


- It was noted that the farms that spend a high proportion of their costs on capital purchases and interest on debt are also the farms that perform poorly in terms of net present value indicator.

3. Recent research:



3. Recent research:



Integrating Aquaculture with Crop Systems

An Aquaponic Enterprise Project Proposal for the Ntinga Multipurpose Co-Operative in Philippi, South Africa

by

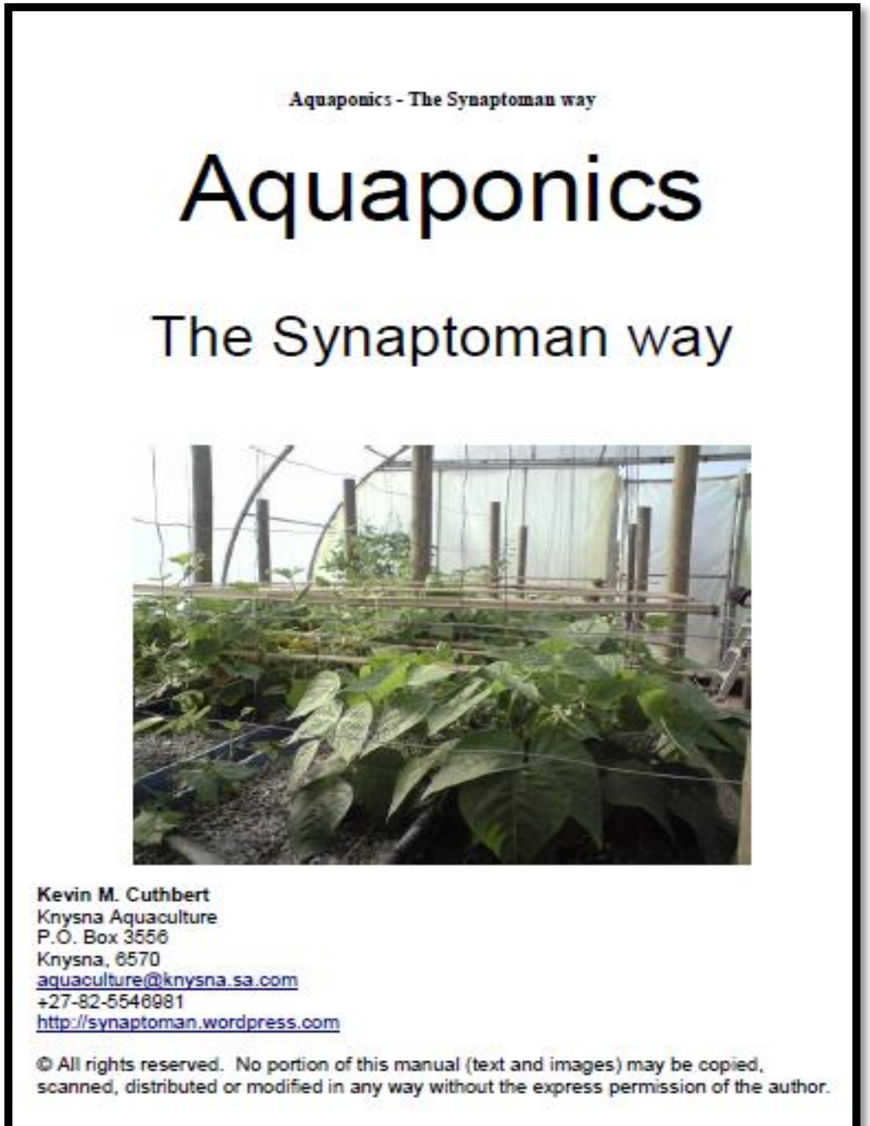
Marnus van der Merwe

Thesis presented in partial fulfilment of the requirements for the degree of Master of Philosophy in Sustainable Development in the Faculty of Economic and Management Sciences at Stellenbosch University

Supervisors: Gareth Haysom and Henk Stander

March 2015

3. Recent research:


Aquaponics - The Synaptoman way

Aquaponics

The Synaptoman way

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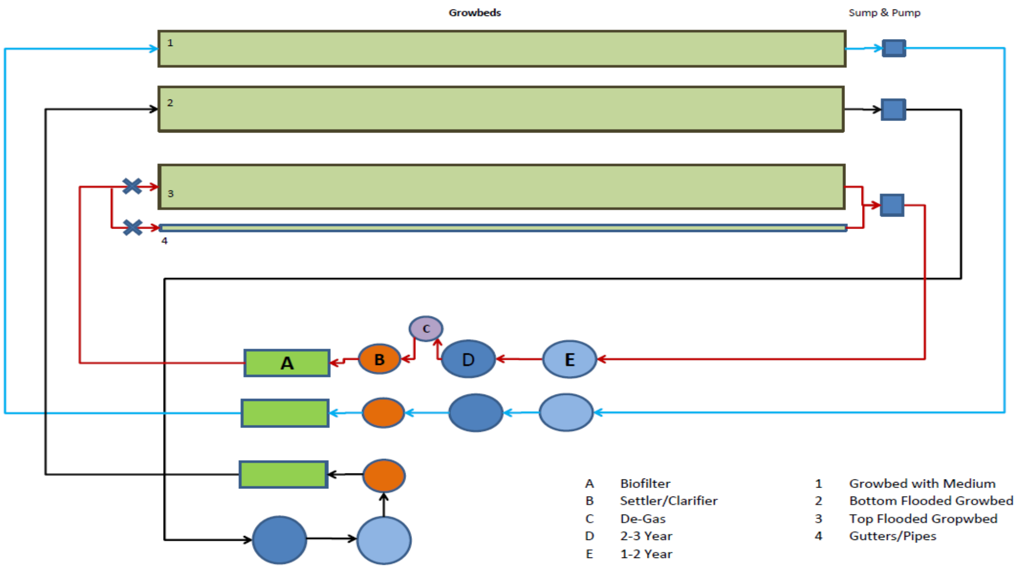
4. Current aquaponic research facilities:

System 1:



System 2:

4. Current aquaponic research facilities:

5. Commercial system examples:






6. Economic considerations:

- Design the system to the best of your ability and improve over time
- Space and resources must be used efficiently
- Stocking densities, pond size, area of hydroponic growth should be calculated scientifically
- Do enough market research
- Do value adding on your products if possible
- Explore Agri-tourism
- Target niche markets
- Diversify your production
- Select the appropriate fish species
- Select the correct high value plant varieties
- Keep input cost as low as possible
- Make use of renewable energy

7. New plant varieties:

8. Future research focus:

- Optimization
- Economic sustainability
- Renewable energy
- Energy efficiency
- Pest control on plants
- New product development
- System design
- Nutrient supplementation
- Artificial fish feed

9. Training and extension:

10. Conclusion:

- Aquaponics is the future!
- Keep living the dream!
- All the best with your Aquaponic Research!